Bulbourethral Sling in Men with Stress Urinary Incontinence

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Abstract
Objective: This study evaluated the efficacy and safety of the bulbourethral sling in male urinary incontinence.

Materials and methods: This case series was conducted in Imam Khomeini hospital-Tehran, between April 2001 to December 2006. Bulbourethral sling was implanted in 7 patients with stress urinary incontinence after prostate surgery. The patients were monitored and evaluated in a prospective manner. The average follow up period was 24 months. Treatment was considered to be successful if the patient stopped wearing any kind of pad and improved if the patient was wearing only one pad daily.

Results: Five patients were completely dry. One patient weared one pad daily and the last patient suffered from treatment failure. All patients who were completely dry or had improvement were satisfied and presented no obstructive or irritative urinary symptoms. Urethral erosion was not reported. The overall success rate was 85%.

Conclusion: The bulbourethral sling in men has satisfying results to treat urinary incontinence.

Keywords: Stress urinary incontinence, Bulbourethral sling, Prostate

Introduction
Sphincter insufficiency is one of the causes of urinary incontinence and is a potential complication after prostate surgery. Regardless of the severity of incontinence observed in post operative period, the condition often improves during the subsequent months. A delay of 6 to 12 months is usually recommended before envisaging an active treatment. The artificial sphincter is currently the preferred treatment in these patients (1,2). Periurethral injection is used less frequently because its effect is often incomplete and transitory. New techniques such as periurethral balloons (3) and bulbourethral sling (4,5) have been developed in recent years and have shown encouraging results.

The concept of bulbourethral compression as a treatment for male incontinence was first introduced by Berry (6) and developed by Kaufman (7). The poor results obtained and high rate of complications resulted in abandonment of this procedure (8). The success of bladder neck suspension techniques using vaginal approach (9, 10) and then urethral support by means of a synthetic sling in women (11) made a new way into the concept of urethral compression in men as a treatment of urinary incontinence after prostate surgery. The first technique (12, 13) consisted of making a urethral support using one or more suspended slings with a retropubic approach and the second using a purely perineal approach of performing bulbo-
urethral compression by means of a sling attached to pubic bone.

We report a series of 7 patients with stress urinary incontinence treated consecutively with the bulbo-urethral sling with regards to short term follow up.

**Materials and methods**

Between April 2001 to December 2006 the bulbourethral sling was implanted in 7 patients with stress urinary incontinence in Imam Khomeini hospital. The incontinence was result of 5 radical prostatectomies and 2 suprapubic open prostatectomies. A full preoperative work up was done, including urodynamic evaluation, cystoscopy and post void residual (PVR) urine volume measurement. In our study no patient had history of radiotherapy.

The procedure was performed with the patient in the dorsal lithotomy position and with a 16 or 18 f urinary catheter in place under general or spinal anesthesia. Preventive antibiotic treatment by a loading dose of first generation of cephalosporins was administered. The bulbourethral sling tape that we used was made of polypropene mesh that exerted pressure on the urethra reducing the possibility of urinary leakage (Figure 1).

The surgical approach was perineal with a 3-4 cm vertical incision made between the scrotum and the anus. Once through the subcutaneous plane and after incision of the Coll’s fascia the bulbocavernous muscle was exposed. The dissection was made laterally about 2 cm to release bulbular urethra. The tape trocar was attached to its driver and passed lateral to bulbular urethra until it perforated endopelvic fascia and passed through the space of Retzius tangential to the back of the pubic periosteum attaining the supra pubic region, and perforating the rectus muscle and its fascia (Figure 2). The tape was then exteriorized through 2 small suprapubic incisions. Cystoscopy was done in all patients to rule out urethral or bladder injury during trocar passage. This operation made a U shape loop of polypropene tape (2 cm in width & 8 cm in length) around bulbular urethra. The procedure ended with closure of the wound in 2 planes without drainage. The urinary catheter was removed on the first or second post operative days. If there were no complications, the patient was discharged the day after removal of the urinary catheter. Follow up controls were routinely scheduled at 1,3 and 6 months post operation and every 6 months thereafter. The efficacy of the procedure was assessed in all patients by medical interview. The degree of urinary incontinence was quantified by the number of pads used per 24 hours. Urinary disorders were sought during the interview and their intensity were evaluated by means of the International Prostate Symptom Score (IPSS) and measurement of PVR urine. Patient's satisfaction was evaluated by means of a simple verbal scale. The treatment was defined as successful if the patient no longer used any form of pads (cured) or used only one pad in 24 hours (improved), without any urinary disorders and significant PVR urine (< 100 ml).

**Results**

The mean age of patients was 72 years (53–84 years). Mean duration of follow up was 24 months. Five
patients (71%) were completely dry, one patient (14%) was improved and another patient (14%) had no response to treatment. Failure was generally observed immediately after removal of the urinary catheter and post operatively in the first three months. After this period all patients who were dry or had improved remained stable, regardless of postoperative follow up length. All patients who were dry or improved were satisfied and didn’t complain from any obstructive or irritative urinary disorders. This finding represented a global success rate of 85% for 7 procedures. Most patients reported perineal pain which was diminished in the first month. One case of spontaneously resolving perineal hematoma, and one case with acute transitory urinary retention after removal of the urinary catheter were detected and these complications resolved after 72 hours of catheterization. No cases of infection or urethral erosion have been reported to date.

Discussion

In our study the success rate was 85% which is comparable to other studies. In this method no screws were used and risk of pubic osteitis or pain maybe lessened.

Comiter (14) described a technique for the compression of the bulbar urethra using a polypropylene bulbourethral sling attached to the ischiopubic branches with 4 titanium screws. The originality of the compression exerted by the sling was that it was not circumferential and that it was not in direct contact with urethra. The sling was applied against the preurethral fat with neither incision in the bulbocavernous muscle nor dissection of urethra. With an average follow up of 12 months, Comiter reported a success rate of 76%. The technique was applied by other teams with success rates varying between 55% to 76% (15,16,17). Fassi-Fehri used the same technique with using circumferential sling around urethra with success rate of 76% with median follow up 6 months (18).

No cases of urethral erosion were recorded in the current series but it can not be ruled out that progressive atrophy of the preurethral tissues caused by permanent compression exerted by the sling could reduce its efficacy and in long term leads to poorer results.

The permanent action of the sling on the bulbar urethra raises the question of urinary tolerance but in our study no patient presented with aggravated irritative symptoms.

The synthetic nature of the device implanted implies a septic risk. Thus it is essential that all the precautions be taken to avoid contamination of the operating site and the material implanted, including perioperative antibiotic therapy, sterile urine, rigorous asepsis and the shortest operation time.

Finally we conclude that bulbourethral sling can be a simple and effective means to treat stress urinary incontinence in men after prostate surgery. But longer follow up with a larger number of patients will be essential to determine the true efficacy and safety of the procedure.

References